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# Joint Technology Exchange Group

## 2002 Annual Report

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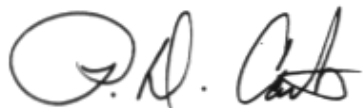


## FROM THE CHAIR

*Welcome to the 2002 JTEG Annual Report. Eighteen years of sharing technology information! 2002 was an eventful year for the Joint Technology Exchange Group. We have new metrics, we have new direction and we have a new strategic plan in place. Our objective remains to continue our work to provide our customers with technology information to support insertion of cost-effective and efficient repair technologies. And we have to do so in an environment where weapon system technologies are evolving and environmental requirements are increasingly stringent.*

*This edition of the JTEG Annual Report characterizes the scope of the JTEG program, reviews the JTEG's activities and accomplishments during 2002, and provides an overview of what's on tap for 2003. This annual report is an important component to inform the community of what JTEG has done and will do to enhance technology insertion.*

*For more information on the JTEG program or any topic covered in this report, or if you have comments and suggestions, feel free to contact me or any member of the Joint Depot Maintenance Activity Group's (JDMAG) JTEG staff. I also invite you to visit our Web site at [www.jdmag.wpafb.af.mil](http://www.jdmag.wpafb.af.mil), where you'll find a wealth of information on the JTEG program and numerous depot maintenance technologies.*



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Col Pamela D. Carter

## WHAT IS JTEG?

In 1984 the Joint Group on Depot Maintenance (JG-DM) chartered the JTEG to facilitate the introduction of new and emerging technologies into the Defense Department's organic maintenance depots. Since then the group has accomplished this mission primarily through facilitating the exchange of information between the military Services, other government agencies, private industry, and academia. The result has been the development of a comprehensive joint technology exchange program that works to minimize duplication of effort and maximize scarce developmental funds by combining the like technology requirements of the different services and government.

## ORGANIZATION

JDMAG's director chairs the JTEG, which consists of principal representatives from the Services, the United States Coast Guard, the Defense Logistics Agency (DLA), and members of the JDMAG staff. However, the arena in which JTEG operates encompasses many DoD and government agencies, as well as academia and commercial industry. Table 1 shows major organizations with which the JTEG interfaces. Additionally, the JTEG has a network of contacts, including experts in various technology fields at each organic depot and representatives of other government agencies. To expand this network and increase the flow of information both to and from the program, the JTEG plays a key role in the Office of the Secretary of Defense (OSD)-sponsored Commercial Technologies for Maintenance Activities (CTMA) program and partners

with technology-oriented joint groups such as the DOD Sustainment Readiness Working Group (SRWG).

*Table 1*

***JTEG Interface Groups***

Department of Energy  
Commercial Industry  
National Institute for Standards & Technology  
Environmental Security Technology Certification  
Panel  
National Center for Manufacturing Science  
Defense Logistics Agency  
Commercial Technologies for Maintenance  
Activities  
Department of Transportation  
Office of the Secretary of Defense  
Environmental Protection Agency  
Sustainment Readiness Working Group  
Joint Council on Aging Aircraft  
National Defense Center for Environmental  
Excellence  
General Service Administration  
Service Manufacturing Technology  
Organizations  
Academia  
National Laboratories  
Concurrent Technology Corporation  
National Aeronautics and Space Administration  
Applied Research Laboratory

efficiency, and reduce the environmental impact of depot maintenance.

To accomplish this goal the JTEG has the following objectives:

- Match requirements with solutions
- Maximize communication within Joint Depot Maintenance (JDM) community on potential business process/technology solutions.
- Increase JG-DM visibility of and interest in joint technology information exchange.
- Maximize Service program office awareness of and participation in JTEG program

## **Focus on the Customer**

As reflected in the goal and objectives, the ultimate purpose of the strategic plan is to orient the program to the customer, the Services and their depots. To support the customer the JTEG will continue to provide technology information to the Services based on the technology needs identified.

## **JTEG STRATEGIC PLAN**

In December of 2002 the JTEG completed its work on the development of a strategic plan. This plan lays out the focus and direction of the JTEG program. Below is a recap of the strategic plan.

### **Goal and Objectives of JTEG**

Within the depot maintenance community, the JTEG goal is to sustain continuous improvement in production and quality while reducing costs by actively seeking and sharing existing and emerging technologies to improve industrial processes, increase

There are a number of ways that JTEG will accomplish this. First, we will continue the annual technology needs process. Service responses to a data call will enable us to provide them the identification of potential solutions. Second, specific technology needs of the Services will tailor the themes of future JTEG meetings, during which information regarding technologies is presented. Finally, based on Service technology needs, JTEG will focus on certain technology projects to sponsor.

## Technology Needs

A foundation of the JTEG program is the annual Technology Needs process. It is this process that enables development of meeting themes, focus areas, and the identification of significant technologies to support depot maintenance. During calendar year 2002 the JTEG compiled maintenance technology needs submitted from the depot maintenance community. The JTEG staff grouped these identified technology needs by Technology Categories. (See the Appendix for a listing of the Technology Categories.) The depot technology needs were matched with the existing projects in the JTEG Technology Database, and were also matched with other information sources such as briefings received at JTEG meetings. *Chart 1* displays the results by category.

Of the 87 needs identified, JTEG was able to identify 278 potential solutions. These potential solutions will be forwarded to the Services for consideration. The 2002 list of technology needs and solutions may be

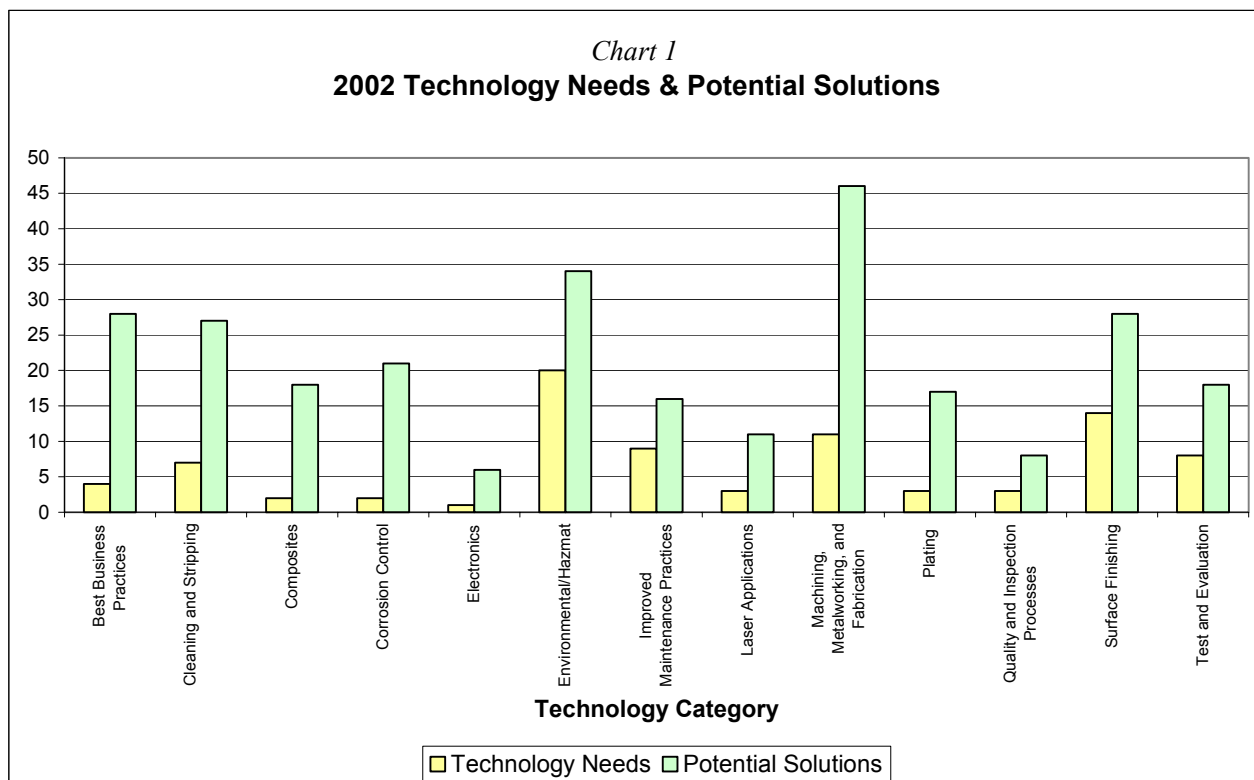
viewed on the JTEG portion of the JDMAG website:

<http://www.idmag.wpafb.af.mil/jteg.htm>

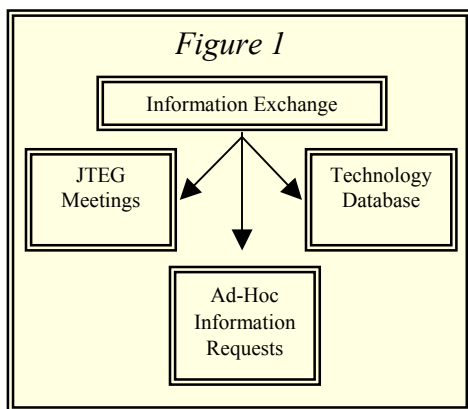
## Information Exchange

JTEG uses a multimedia approach to exchanging technology information. There are three primary mechanisms for information exchange as shown in *Figure 1*. These include JTEG meetings, the technology database on our website, and fielding ad hoc requests for technology information.

JTEG-sponsored technology meetings and workshops provide opportunity for networking during open discussions and demonstrations conducted as part of the meetings. When possible briefings from these meetings are made available on the JTEG portion of the JDMAG Website and represent another venue for information exchange.



In addition, the JTEG participates in meetings, conferences, and workshops sponsored by other government groups and industry. We also team with other technology groups when possible. Through teaming and participation the JTEG has an established network of depot technology experts.



## 2002 ACTIVITIES AND ACCOMPLISHMENTS

### Technology Exchange Meetings

The JTEG conducts three meetings a year at various selected locations to showcase new technology applications and process demonstrations. Meetings are topically oriented, and participation is open to the depot maintenance community, industry, and academia. During 2002 the JTEG hosted two meetings and cosponsored a third meeting.

#### 16-18 April 2002 Joint Symposium, "Strengthening America's Military Readiness, Jacksonville, Florida

The first meeting of 2002 was a joint symposium cosponsored by JTEG, the National Center for Manufacturing Science/Commercial Technologies for Maintenance Activities (NCMS/CTMA), the Joint Council on Aging Aircraft, and the DoD Sustainment and Readiness Subpanel. The theme of the symposium was "Strengthening America's Military Readiness." Over 230

people attended the symposium from government, industry and academia. It featured breakout sessions offering technology presentations on metals, non-metals, concurrent engineering and advanced business practices, green manufacturing, and electronics. One significant result of the symposium was the identification of 34 new projects for CTMA sponsorship.

The JTEG received a technology demonstration tour of the Naval Air Depot Jacksonville maintenance facilities. The group was shown the Materials Engineering Laboratory, closed loop industrial wastewater recycling, high pressure water stripping equipment, electroplating processes, High Velocity Oxygen Fuel (HVOF) coating equipment, aircraft painting operations, and Plastic Media Blasting (PMB) depainting operations.

#### 16-18 July 2002 JTEG Meeting, "Corrosion Control and Surface Finishing Technologies," Portsmouth Naval Shipyard (PNSY), Kittery, Maine

July saw the JTEG travel to Portsmouth Naval Shipyard to host a meeting on "Corrosion Control and Surface Finishing Technologies." Nearly 60 people representing government, academic and commercial organizations, attended this meeting. The meeting highlights included briefs shown in *Table 2*.



*Submarine in Drydock*



*Table 2*

**16-18 July 2002 JTEG Meeting  
"Corrosion Control and Surface Finishing  
Technologies"**

Chrome Plating Substitution  
Ice Cleaning Technology  
USAF De-paint Manipulator Aerial Multi-axis Platform  
Alternatives to Aluminum Ceramic Coatings for Turbine Engine Components  
Naval Surface Warfare Center Crane Division, Corrosion Control Fleet Support  
Plural Component Paint Dispensing System  
Corrosion Control and Surface Finishing Technologies  
Paint Booth Barstow and Oil Mist Technology  
US Army Approved CarWell T-32 Corrosion Protection System  
Metals Treatment Technologies  
Thermal Spray Coatings For Hard Chrome Replacement  
Crane Systems Corrosion Control and Analysis  
High Solid Paints on 688 Class Submarines  
Dual Use Interior Direct-To-Metal (DTM) / Exterior Chemical Agent Resistant Coating Primer (CARC)  
Portable Laser Coating Removal Systems  
Cadmium Alternative for Fasteners  
Lean Sustainment for the Depots  
Surface Finishes on Titanium & Wire Build-up Welding

A technology demonstration tour of the shipyard was also given. The tour highlighted the shipyard maintenance facilities. The group was shown plural component painting operations, powder coating operations, industrial electroplating of equipment shafts and valve components, the Oil Analysis Laboratory, and equipment cleaning with an industrial ice cleaning system.

**5 - 7 November 2002 JTEG Meeting,  
"Best Business Practices," Columbus,  
Ohio**

Columbus Ohio was the venue for the November JTEG meeting. Over 90 people

attended. The theme of the meeting was Best Business Practices. The meeting provided the attendees with descriptions of how each Service inserts technology into their respective depots, a variety of technology presentations and Best Business Practices of the Services. The meeting highlights included briefs shown in *Table 3*.

At this meeting, attendees were afforded the opportunity to receive technology demonstration tours at the Boeing Guidance and Repair Center (GRC) in Newark Ohio and the Battelle Memorial Institute in Columbus Ohio. At Battelle the JTEG group was shown the Joint Biological Point Detection System (JBPDS), Helicopter Environmental Characterization, and avionics equipment for the F-16, B-52, and E-3A aircraft. At Boeing GRC, the JTEG group was shown the Measurement and Test Equipment Laboratory, aerospace machining operations, guidance and navigation systems overhaul processes, Minuteman III and Peacekeeper Intercontinental Ballistic Missiles (ICBM) calibration, Cruise Missile sensor repair, and aircraft carrier Dual Miniature Inertial Navigation System (DMINS) calibration.



*Boeing GRC Facility*

*Table 3*

**5 - 7 November 2002 JTEG Meeting  
"Best Business Practices"**

**Services Technology Insertion Methodologies**

Air Force "Technology Transition/Insertion and Depot Maintenance Modernization"  
Army "N-STEP: NAC-Standardized Exchange of Product"  
Naval Sea Systems Command (NAVSEA) "Depot Technology Insertion Process"  
Naval Air Systems Command (NAVAIR) "Technology Insertion in the Naval Air Systems Command Aviation Depots"  
Marine Corps "Technology Insertion Methodology And Initiatives"  
Defense Logistics Agency "DLA Industrial Machinery Facilities And Support"

**Technology Briefings**

Overview of Commercial Technologies for Maintenance (CTMA) Activities  
Oxygen Line Cleaning System (OLCS)  
Telesis Permanent Part Marking  
Hazardous Material Encapsulation Technology  
Capacity And Capability of Boeing Aerospace Guidance And Repair Center (GRC)  
Corrosion Preventive Compounds (CPC) for Avionics

**Best Business Practices**

Future Logistics Enterprise (FLE)  
USAF Depot Maintenance Reengineering and Transformation (DMRT)  
Adapting LEAN at Warner Robins Air Logistics Center  
Automated Information Technology (AIT)  
NAVY Best Manufacturing Practices Center of Excellence  
LEAN Manufacturing at Red River Army Depot  
Knowledge Based Product Development Paradigms: A Process for World Class Performance  
e-Learning Enhanced Apprenticeship Programs  
Tech Solutions - E-Business Program  
On-Demand Manufacturing  
Hybrid Cellular Layouts: Any Role in Repair and Maintenance Facilities?

## **JTEG Technology Database**

Another medium for information exchange is the technology database. This database provides synopses of developing technologies that are "adopted" or tracked by the JTEG. When JTEG determines it wants to track a particular technology in its development or application, the technology is designated a "JTEG project." Projects are either "open" or "closed." An open project is one where there is still an ongoing study to determine whether or not the technology has merit for application in a depot setting, has matured, or in some form or another is still being assessed. A closed project is one where the effort being tracked has arrived at some conclusive end state. That could be that the technology is proven to work and is available, the technology does not prove viable, or perhaps needs some additional refinements. The JTEG retains synopses of both the open and closed projects in its database.

In 2002, the JTEG opened ten new projects and closed eight. Of the opened projects, one of the most significant was the Erosion Resistant Coating for Turbine Blades. This project is a Naval Air Systems Command (NAVAIR)-led initiative to transfer a Russian-developed technology for coating gas turbine compressor engine (GTE) blades to greatly extend their service life.

## **Ad-Hoc Information Requests**

The JTEG occasionally is called upon to lend advice and assistance in technology efforts that fall outside the realm of adopted JTEG projects. Some significant requests for technology information during 2002 were:

- XM777 Howitzer Chemical Agent Resistant Coating (CARC) - CARC adhering to the XM777 Howitzer surfaced as a problem. The Army

Picatinny Arsenal contacted the JTEG for assistance to correct the problem prior to the low-rate initial production of the weapon system. The JTEG staff was instrumental in finding potential solutions for this problem. JTEG recommended a pretreatment of the titanium surfaces with PASA Jell 7. This pretreatment "activates" the titanium surface so that structural bonding can occur between the titanium surface and the applied coating.



*XM777 Howitzer*

- Survey of Maintenance Depot Capabilities booklet - Prior to OSD publishing this booklet, OSD requested JTEG to provide depot maintenance capability input for use in assessing government/industry potential for Public-Private Partnerships.
- Jet Glo EXPRESS Topcoat - The JTEG had requests from multiple organizations to identify environmentally friendly topcoats that could be used as an alternative coating for weapon system applications. The JTEG staff accomplished the research to determine if an environmentally friendly topcoat that met or exceeded the performance requirements of MILSPEC MIL-PRF-85285 and the Unified Paint Specification AMS 3095 was available.

Subsequently, the JTEG recommended Jet Glo EXPRESS as an alternative topcoat that can be used in many coating applications, but not as a "drop in" replacement.

## **2003 ACTIVITIES**

### **Technology Exchange Meetings**

On tap for 2003 are three meetings.

The first, slated for 1-3 April 2003, is the "21st Century Depot" Symposium co-sponsored by Commercial Technologies for Maintenance Activities (CTMA), Joint Technology Exchange Group, Joint Council on Aging Aircraft (JCAA), and the Sustainment Readiness Working Group (SRWG). The meeting location is Salt Lake City, Utah.

Next is the 8-10 July 2003 JTEG meeting to be held at Tobyhanna Army Depot. This meeting will center on electronics and test and evaluation.

The final JTEG meeting event of the year will be at Okalahoma City Air Logistics Center in November 2003. This meeting will focus on composites and industrial fabrication.

### **Meeting Critiques**

The product of JTEG is technology information. To improve the quality and relevance of the technology information provided at the JTEG meetings, the JTEG uses critiques to solicit comments from attendees about the meetings and the program in general. This feedback is compiled and used as a resource to address current and future technology needs, enhance the JTEG program, and to assess the effectiveness of JTEG services, products, and meetings.



In general, respondents to the critiques felt that most of the meeting contents were beneficial to the industrial needs of their facilities. The most common positive comment encouraged the JTEG to “continue providing potential solutions that can be taken back home.” Specifically, the critiques showed interest in:

- sharing and partnering of technology resources,
- more technologies from Service laboratories,
- meeting networking and demonstration tour technologies, and
- DoD technology groups need to focus on developing depot needs.

## **Metrics**

As part of the strategic plan implementation and execution, a set of metrics will be employed to gauge the success of the JTEG efforts towards meeting the strategic plan objectives. The metrics are designed to measure program successes and to assess how well the JTEG is doing in reaching out its customers, how well JTEG is doing in expanding its customer (audience) base, and how well JTEG is promoting its information product.

For the objective to match requirements with solutions the metric is to identify the number of depot technology successes facilitated by JTEG. A number of surveys are underway to find out from our customers if the information has yielded something tangible or in some cases prevented a course of action that would have had poor results.

To maximize communications, we will assess whether or not the presentations at meetings match depot needs. We want to

ensure that presentations are matched to depot needs

We will be looking to see if the audiences at meetings match to the theme of the meetings and who those attendees are. We want to ensure attendance by all JTEG Principals and at least one representative from each “targeted” depot (i.e., a depot to which the meeting theme applies)

In our effort to increase visibility and interest in the JTEG program, we will accomplish and measure the amount technology briefings to our overall parent group, the Joint Group on Depot Maintenance (JG-DM). At each meeting of the JG-DM there will be at least one technology brief. We're also committed to having the JTEG Principals to meet semi-annually with their respective JG-DM Principals.

Finally, our objective to promote the JTEG program to Service program offices will be accomplished by providing a JTEG orientation briefing to program office personnel. We will keep track of the number of program offices briefed and the amount of program offices attending versus those invited.

Next year's annual report will provide presentations of the measurements.

## **CONCLUSION**

2003 holds much promise and requires commitment by the participants of JTEG to meet the stated goal.

We will continue to elevate the quality of JTEG meetings, continue to improve our basic foundation of identifying technology needs and providing potential solutions to our customers, and persevere in providing technology information.

2003 also promises to be a challenging year for those who work in depot maintenance technology insertion. We in JTEG will continue striving to enhance the acquisition of effective and efficient depot maintenance technology solutions.

## **JTEG Principal Representatives**

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**Technology Categories of the  
Technology Needs Process and the JTEG Technology Data Base**

**Best Business Practices** – Systems, practices, or procedures, which have the potential for improving the managerial oversight of industrial maintenance applications.

**Cleaning and Stripping** – Technologies, practices, or procedures utilized in cleaning, degreasing, and repainting processes of any industrial maintenance application.

**Composites** – Technologies employed in the manufacture, repair, or processing of materials which have non-metallic materials in their composition.

**Corrosion Control** – Technologies, practices, or procedures, which can remove corrosion, arrest the process of corrosion, or alter the electrolytic degradation of metals in any industrial maintenance application.

**Electronics** – Technologies or procedures that will improve the manufacture or repair of electronics equipment.

**Environmental/Hazmat** – Technologies, practices, procedures, and issues related to industrial maintenance, and which address the handling, collection, treatment, and disposal of hazardous material.

**Improved Maintenance Practices** – Technologies, practices, or procedures, which have the potential for improving the functional operation of any industrial maintenance process.

**Laser Applications** – Technologies, practices, or procedures utilizing laser processes in any industrial maintenance application.

**Machining, Metalworking, and Fabrication** – Technologies, practices, or procedures employed in any industrial maintenance application, which involves forming, machining, and fabrication of metallic materials.

**Plating** – Technologies, practices, or procedures utilized in the plating, cladding, or deposition of metallic materials on surfaces.

**Quality and Inspection Processes** – Systems, practices, or procedures, which can improve quality or inspection applications for industrial maintenance operations.

**Surface Finishing** – Technologies, practices, or procedures utilized in the application of non-metallic coatings to surfaces and the chemical and blast pretreatment of surfaces prior to coating applications.

**Test and Evaluation** – Systems, practices, or procedures, which can be utilized to determine the value and function of any industrial maintenance operation or process.